1. (d)
2. (d)
3. (c)
4. (b)
5. (d)
6. (c)
7. (d)
8. (a)
9. (a)
10. (b)
11. (a)
12. (b)

13. **IMPORTANCE OF CLUSTERING**

- Clustering is a widely used unsupervised learning technique that allows us to find hidden patterns or relationships between the data points based on the common attributes in the data. It is mainly used to extract valuable inferences from the data sets especially when we work with huge datasets.
- Clustering is used to identify groups of similar objects in datasets with two or more variable quantities. In practice, this data may be collected from marketing, biomedical, or geospatial databases, among many other places.
- Machine learning systems can then use cluster IDs to simplify the processing of large datasets. Thus, clustering's output serves as feature data for downstream ML systems.

13. IMPROVING THE CLUSTER PERFORMANCE

- A good clustering method will produce high quality clusters in which: – the intra-class (that is, intra intra-cluster) similarity is high. – the inter-class similarity is low. The quality of a clustering result also depends on both the similarity measure used by the method and its implementation.
- It is a common practice to apply PCA (principal component analysis) before a clustering algorithm (such as k-means). It is believed that it improves the clustering results in practice (noise reduction).